

Solve the compound inequality. Graph the solution set and write it in interval notation.

1.  $3x + 1 < 4$  and  $2x + 4 \geq -4$

2.  $5x - 3 > 2$  or  $-2x \geq -6$

3.  $-2 < \frac{x-3}{3} < 4$

4.  $x > 4$  or  $x \geq -2$

Solve each equation or inequality. Use interval notation when appropriate.

5.  $|3x + 6| - 7 = 8$

6.  $|4x - 7| = -5$

7.  $|3 - 2x| \geq 5$

8.  $\left| \frac{2x-1}{3} \right| \leq 7$

9.  $|4 - 5x| > -6$

10.  $|2 - 3x| = |x + 2|$

11.  $|x + 3| + 2 < 5$

Graph each inequality

12.  $y \leq 2x - 1$

13.  $4x - 2y < 6$

Graph the solution of the following systems of linear inequalities

14. 
$$\begin{cases} 2x - y \geq -4 \\ y > \frac{2}{5}x - 3 \end{cases}$$

15. 
$$\begin{cases} y < 4 \\ x \geq 2 \end{cases}$$

Write each of the following in simple radical form. Assume that all variable expressions represent positive numbers.

16.  $\sqrt[3]{64x^9y^6}$

17.  $-\sqrt{49x^3y^{16}}$

18.  $\sqrt[4]{16x^{10}y^5}$

19.  $\sqrt[5]{(x-2)^5}$

20.  $\sqrt[3]{\frac{54x^{13}y^5}{2x^4y^2}}$

Simplify each expression. Assume that all variables represent positive numbers. Exponents in the final answer should be positive.

21.  $\left( \frac{x^{\frac{2}{3}}}{y^{-\frac{1}{3}}} \right)^6$

22.  $\left( \frac{x^{\frac{1}{2}}}{y} \right)^{-2}$

23.  $a^{\frac{2}{3}}(a^{\frac{1}{3}} - 2a^{\frac{4}{3}})$

Perform the indicated operations. Assume that all variables represent positive numbers.

24.  $\sqrt[3]{25x^2y^4} \cdot \sqrt[3]{5x^7y^8}$

25.  $\frac{6\sqrt{a^5b}}{\sqrt{4a^2b^3}}$

26.  $3\sqrt{32x^2} + 5x\sqrt{8}$

27.  $(2-3\sqrt{3})(2+3\sqrt{3})$

28.  $(\sqrt{7} + \sqrt{2})^2$

29.  $\sqrt[3]{54x^4} + 4x\sqrt[3]{16x}$

30.  $\sqrt{45} - \sqrt{20}$

31.  $(4\sqrt{3} - 3\sqrt{2})(5\sqrt{3} + 3\sqrt{2})$

32. Find the distance between the points  $(-5, 8)$  and  $(1, 16)$ .

Sketch a graph of each of the following functions. List the domain and range of the function. Label 3 exact points.

33.  $f(x) = \sqrt{x+2}$

34.  $g(x) = \sqrt[3]{x}$

### Solutions – Practice Test Two

1.  $[-4, 1)$

11.  $(-6, 0)$

2.  $(-\infty, \infty)$

12.

3.  $(-3, 15)$

4.  $[-2, \infty)$

5.  $\{3, -7\}$

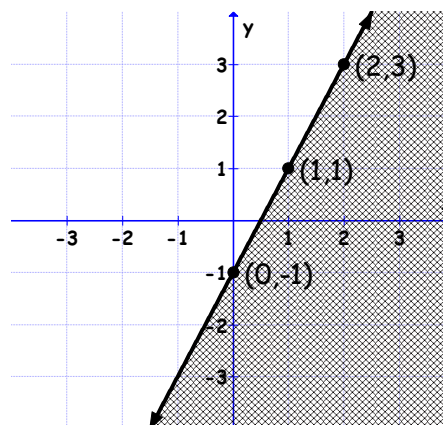
6. no solution

7.  $(-\infty, -1] \cup [4, \infty)$

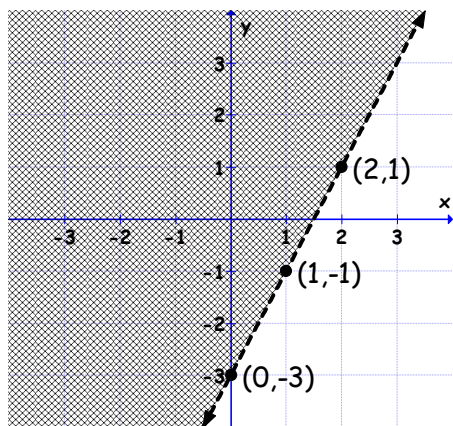
8.  $[-10, 11]$

9.  $(-\infty, \infty)$

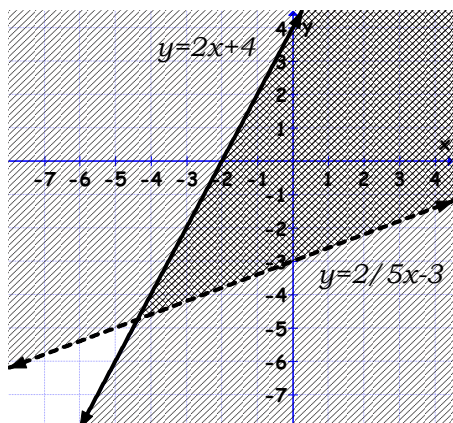
10.  $\{0, 2\}$



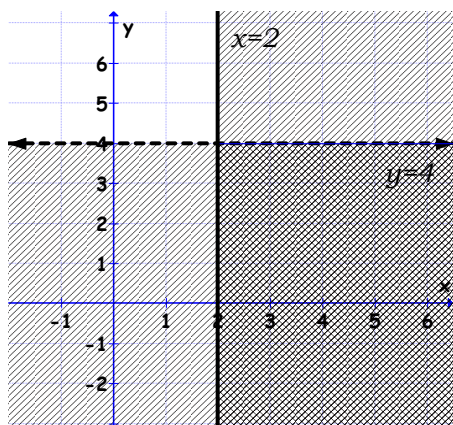
13.



14.



15.



16.  $4x^3y^2$

17.  $-7xy^8\sqrt{x}$

18.  $2x^2y\sqrt[4]{x^2y}$

19.  $x - 2$

20.  $3x^3y$

21.  $x^4y^2$

22.  $\frac{y^2}{x}$

23.  $a - 2a^2$

24.  $5x^3y^4$

25.  $\frac{3a\sqrt{a}}{b}$

26.  $22x\sqrt{2}$

27.  $-23$

28.  $9 + 2\sqrt{14}$

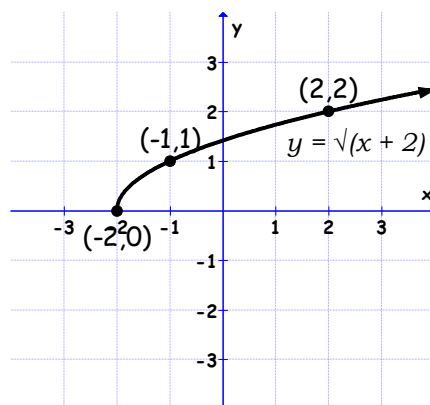
29.  $11x\sqrt[3]{2x}$

30.  $\sqrt{5}$

31.  $42 - 3\sqrt{6}$

32. Distance is 10 units

33. Domain:  $[-2, \infty)$  Range:  $[0, \infty)$



34. Domain:  $(-\infty, \infty)$  Range:  $(-\infty, \infty)$

